CLAIMS

1 A well cementing composition comprising a trimodal blend of particulate materials present as fine, medium and coarse particle size fractions, the particulate materials including cement, flexible particles, and a filler, characterized in that the cement comprises the fine particle size fraction, and the flexible particles and filler comprise the medium and large particle size fractions.

2 A composition as claimed in claim 1, wherein cement is only present in the fine particle size fraction.

3 A composition as claimed in claim 1 or 2, wherein the fine particle size fraction has an average particle size of 10 microns or less; the medium particle size fraction has an average particle size of 20 to 100 microns; and the large particle size fraction has an average particle size of 100 to 400 microns.

4 A composition as claimed in any of claims 1 – 3, wherein the cement comprises micro-cement or a mixture of micro-cement and slag.

5 A composition as claimed in any preceding claim, wherein the blend has a packing volume fraction of at least 0.78.

6 A composition as claimed in any preceding claim, wherein the medium and large particle size fractions comprise high-density fillers and flexible particles.

7 A composition as claimed in claim 6, wherein the high-density fillers comprise hematite or ilmenite.

8 A composition as claimed in claim 6 or 7 when mixed with water to form a slurry having a density above 16 ppg.

9 A composition as claimed in of claims 1 - 5, wherein the medium and large particle size fractions comprise low-density fillers and flexible particles.

10 A composition as claimed in claim 9, wherein the low-density fillers comprise hollow glass beads, hollow aluminosilicate particles, microspheres, cenospheres, or hollow ceramic beads.

11 A composition as claimed in claim 9 or 10 when mixed with water to form a slurry having a density below 12 ppg.

12 A composition as claimed in any of claims 6 – 11, wherein the flexible particle comprise ground rubbers, polyethylene, polypropylene or styrene-divinylbenzene.

13 A composition as claimed in any preceding claim, comprising:

- 10 – 30% BVOB fine particles;
- 20 – 40% BVOB medium particles; and
- 40 – 55% BVOB coarse particles.

14 A composition as claimed in claim 13, wherein the fine particles contain 10 – 25% BVOB cement.

15 A composition as claimed in claim 13 or 14, wherein the fine particles contain 10 – 15% manganese tetroxide.

16 A composition as claimed in claim 13 or 14, wherein the fine particles contain up to 10 % BVOB silica.

17 A composition as claimed in any of claims 13 – 16, wherein the medium particles comprise hematite.

18 A composition as claimed in any of claims 13 – 17, wherein the medium particles contain rubber, synthetic rubber, polypropylene or silica.

19 A composition as claimed in any of claims 13 – 18, wherein the coarse particles contain up to 35% BVOB hematite.

20 A composition as claimed in any of claims 13 – 18, wherein the coarse particles contain 15 – 40% BVOB rubber.

21 A composition as claimed in any of claims 13 — 18, wherein the coarse particles contain 35 – 52% BVOB silica.

22 A composition as claimed in any of claims 13 — 18, wherein the coarse particles contain about 55% BVOB rubber, synthetic rubber, or polypropylene.

23 A composition as claimed in any preceding claim, wherein the cement content of the blend is less than 30% BVOB.

24 A composition as claimed in claim 23, wherein the cement content is less than 25% BVOB.

25 A composition as claimed in claim 24, wherein the cement content is less than 20% BVOB.

26 A composition as claimed in claim 15, wherein the cement content is less than 15% BVOB.